สยามชำนาญกิจ
SIAM CHAMNAN KIT

Contract Testing with Pact

Topics

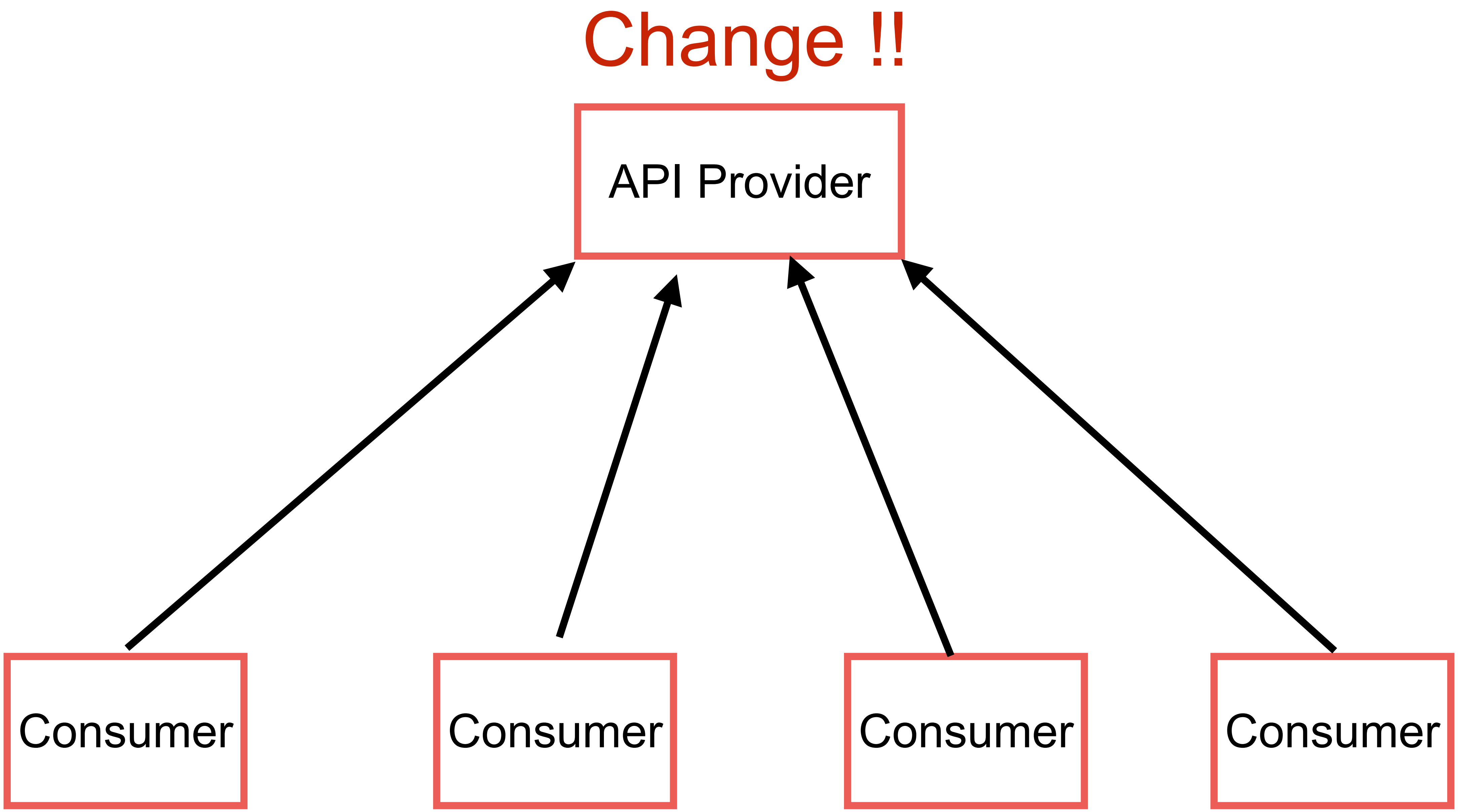
Problem ?

Contract testing

What is Pact ?

Workshop with NodeJS and Go

Problem ?


Change !!

API Provider

Consumer

Consumer

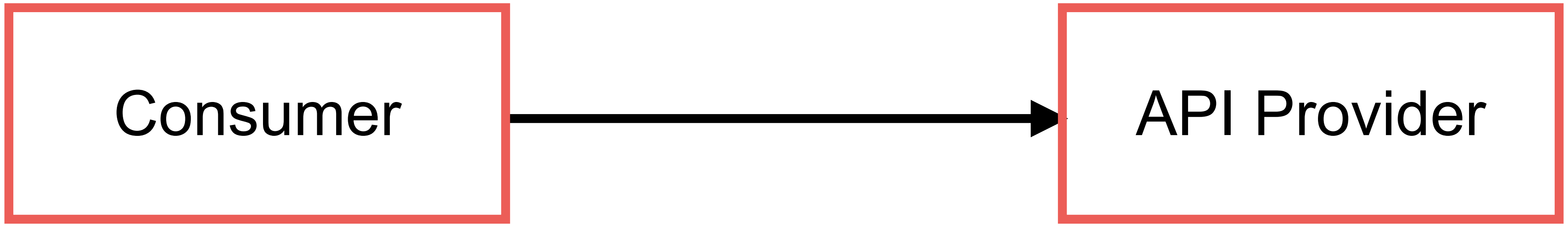
Consumer

Consumer

Ensure API compatibility

Integration test

High confidence to release



Problems of integration test

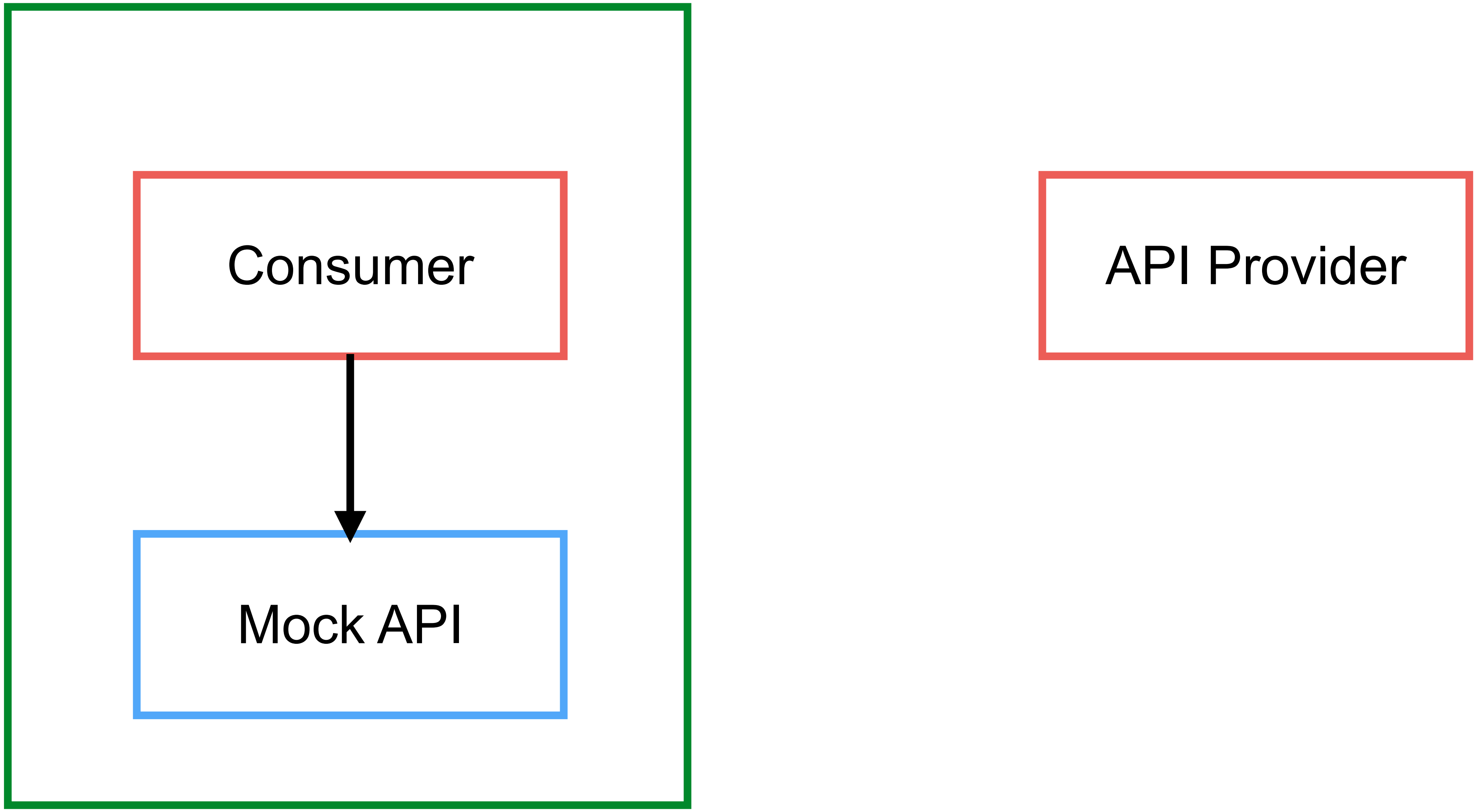
Control Dependency !!

Slow feedback

Break easily

A lots of maintenance

Component test

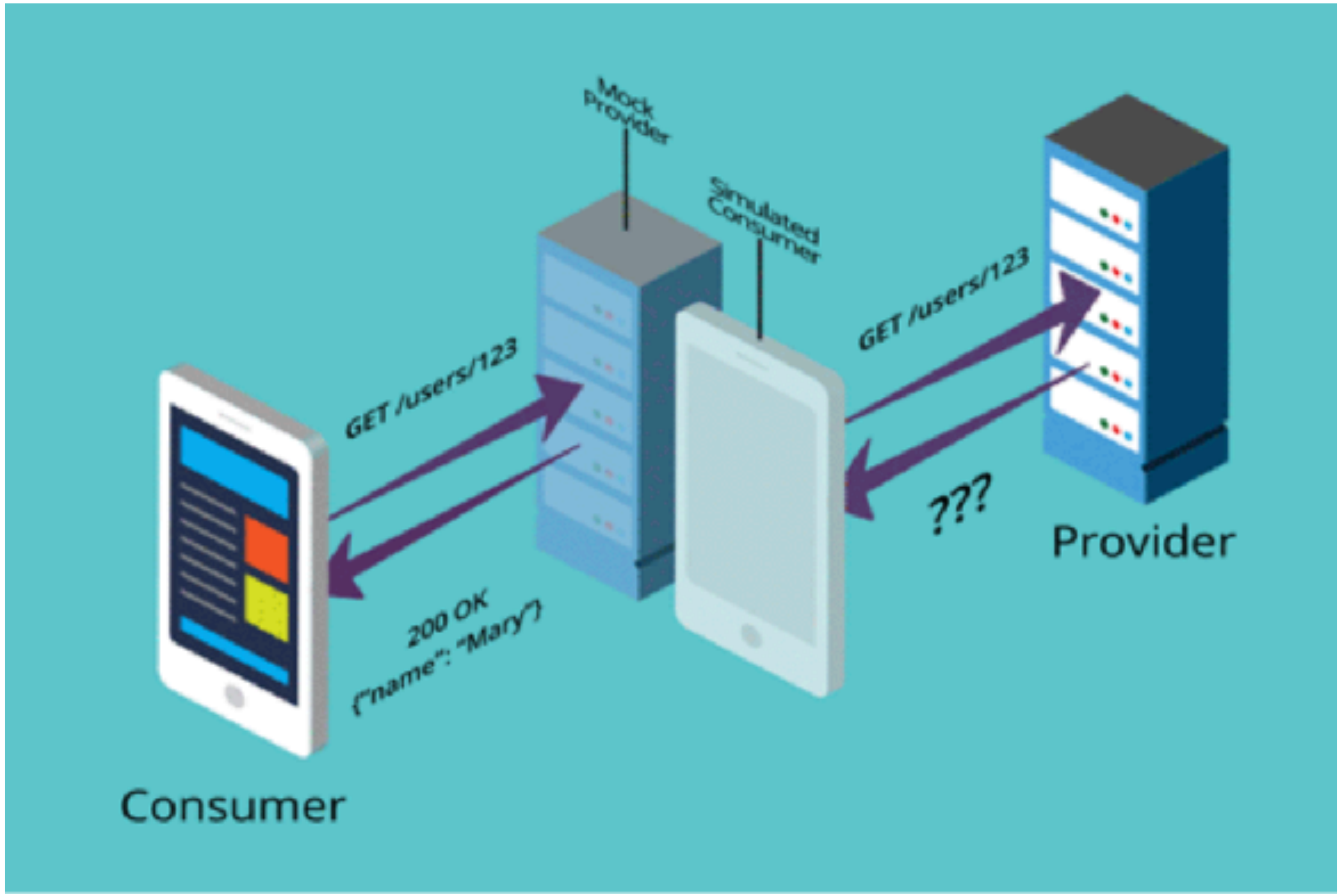


Improve collaboration and confidence with Contract testing

Contract Testing

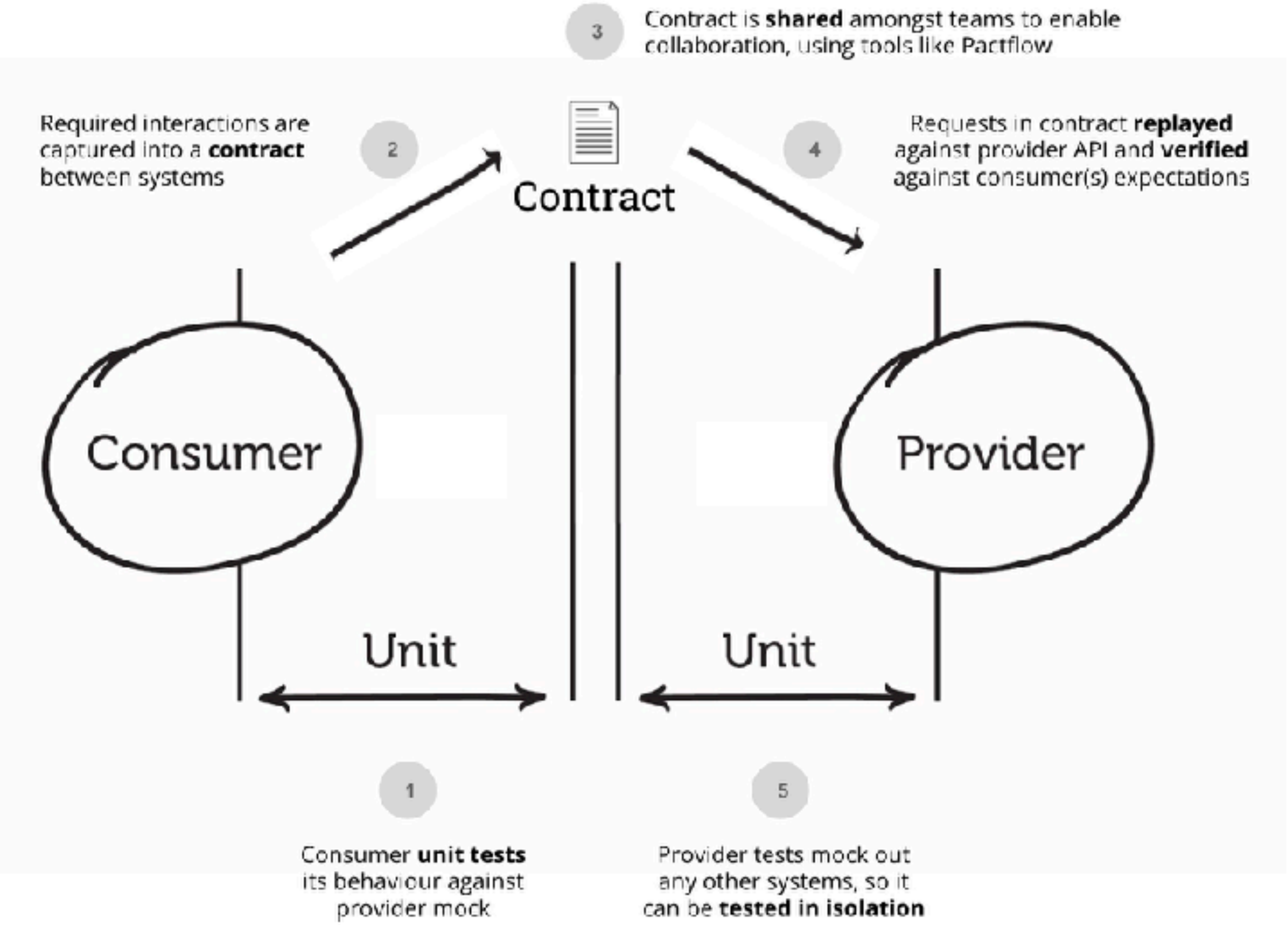
https://docs.pact.io/

Contract Testing



https://pactflow.io/how-pact-works/#slide-2

Contract Testing



3 Contract is **shared** amongst teams to enable collaboration, using tools like Pactflow

2 Required interactions are captured into a **contract** between systems

4 Requests in contract **replayed** against provider API and **verified** against consumer(s) expectations

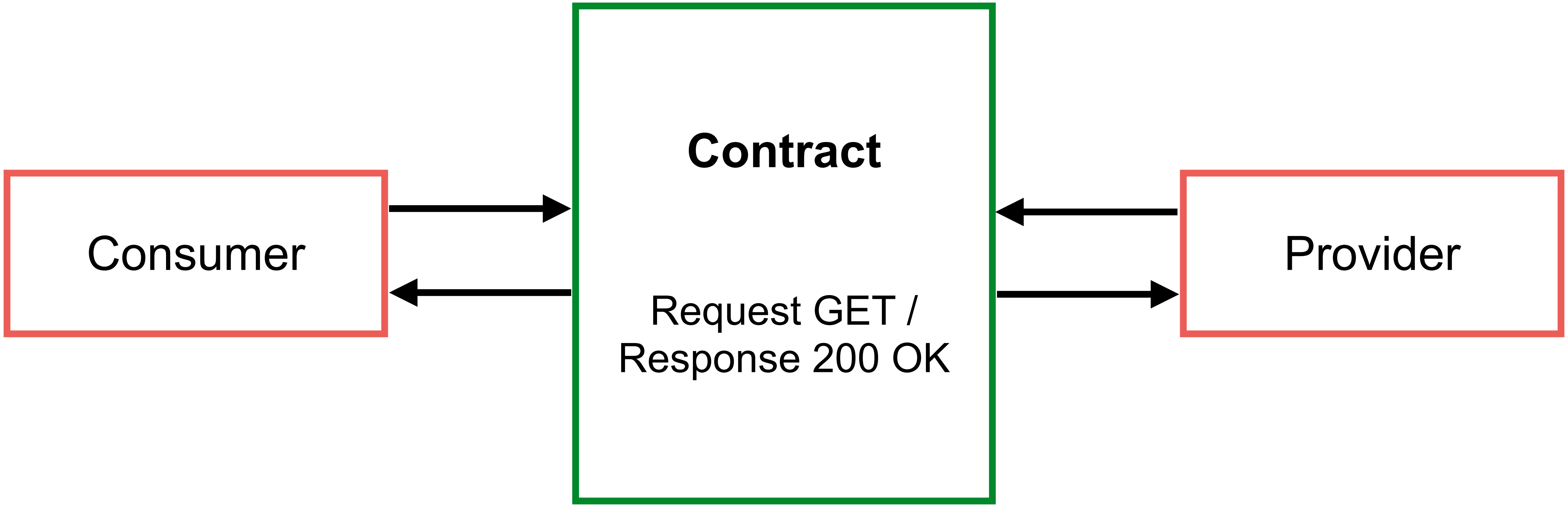
1 Consumer **unit tests** its behaviour against provider mock

5 Provider tests mock out any other systems, so it can be **tested in isolation**

https://pactflow.io/how-pact-works/#slide-1

Contract Testing

Check ad ensure the interoperability of software application in isolation



Consumer

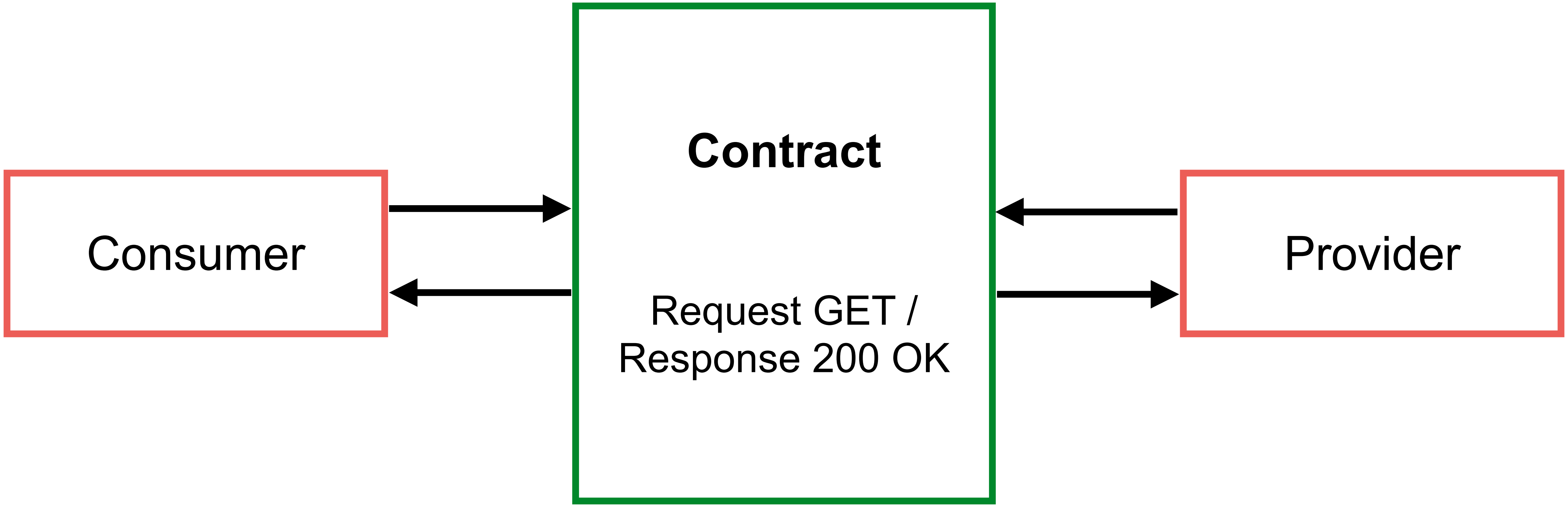
Contract

Request GET /
Response 200 OK

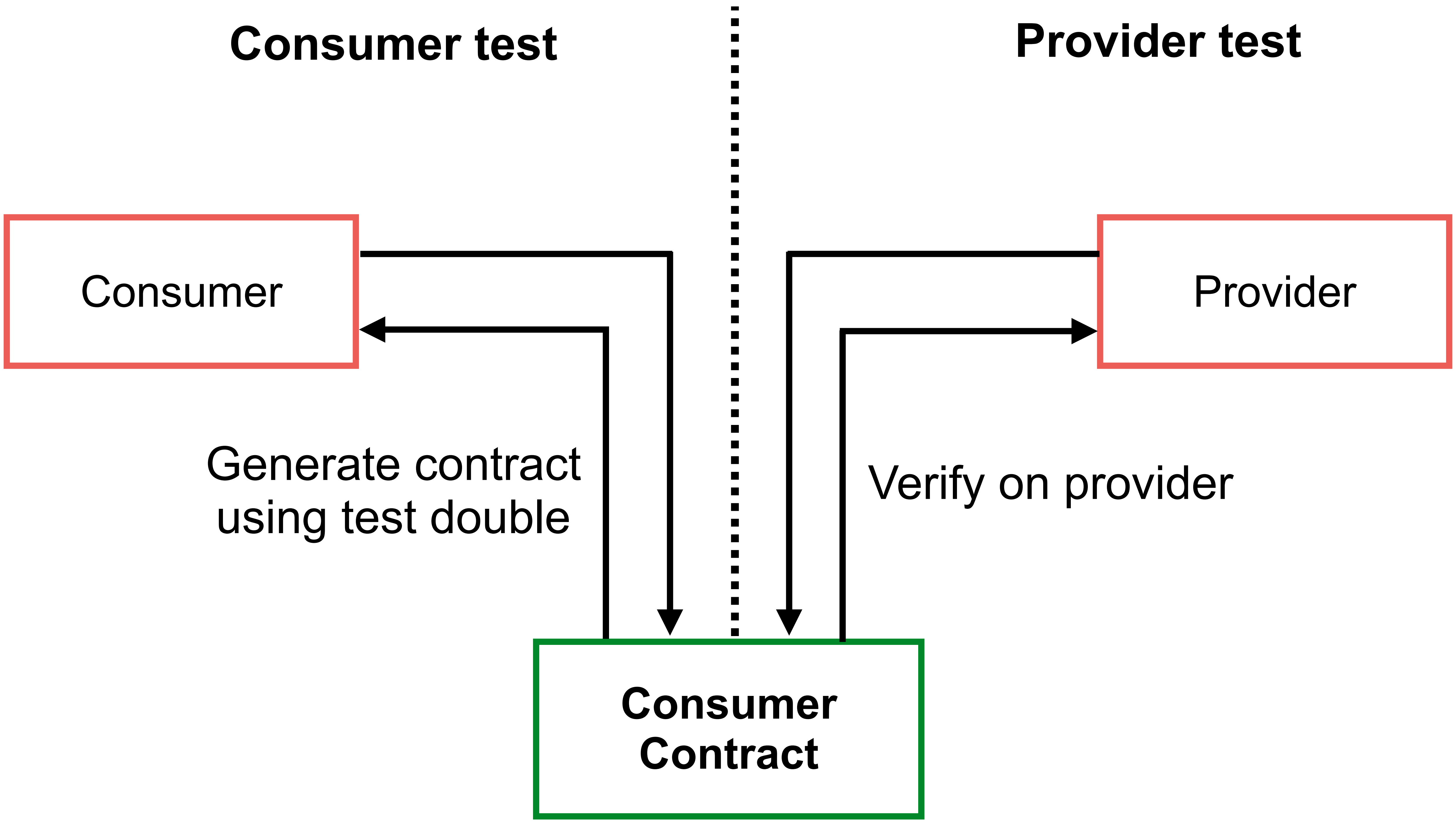
Provider

Contract Testing

Enable teams to deploy microservices independently



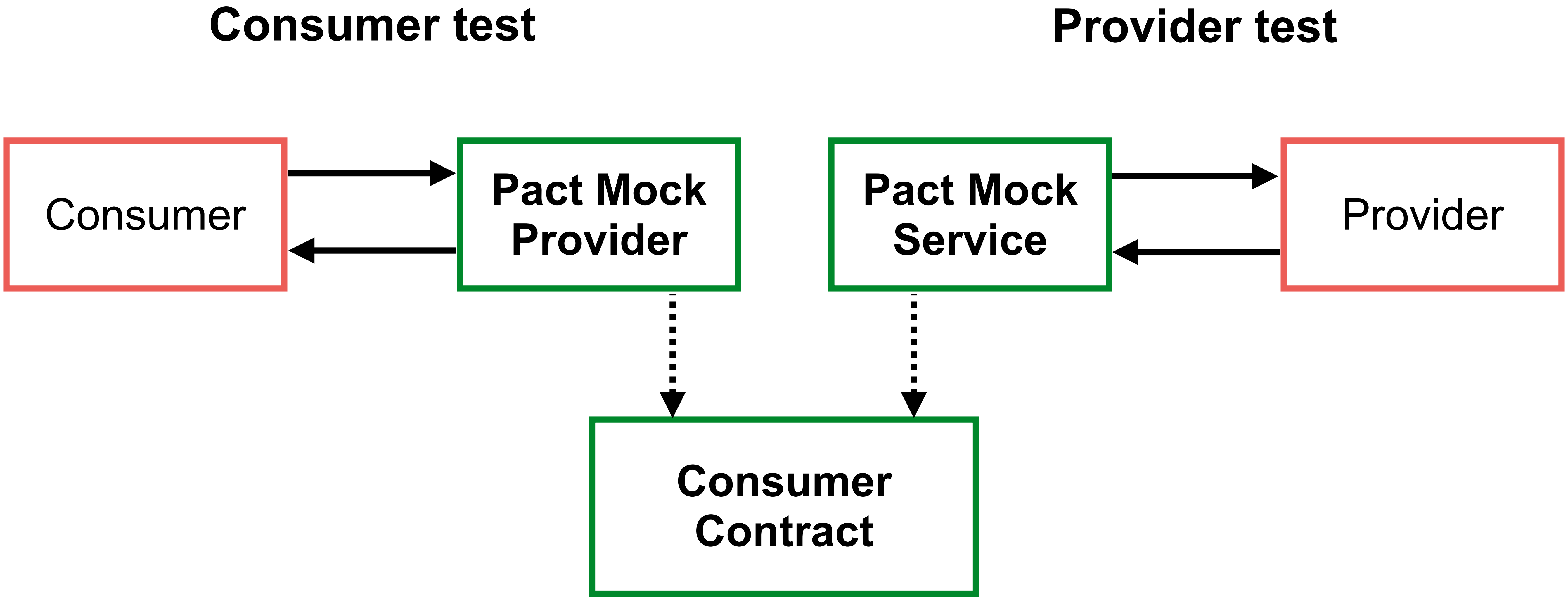
Consumer-driven Contract Testing



Working with Pact

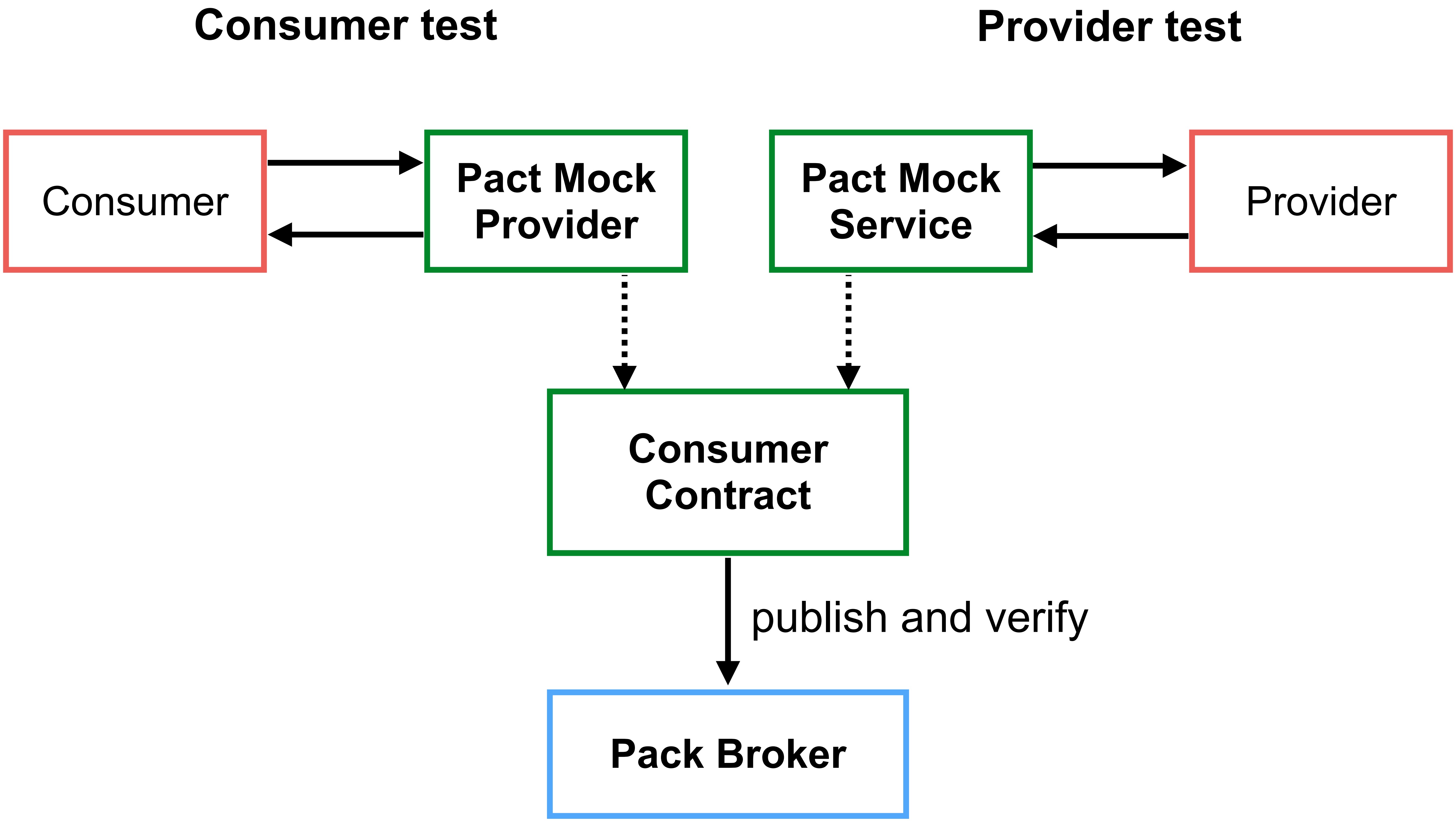
Working with Pact

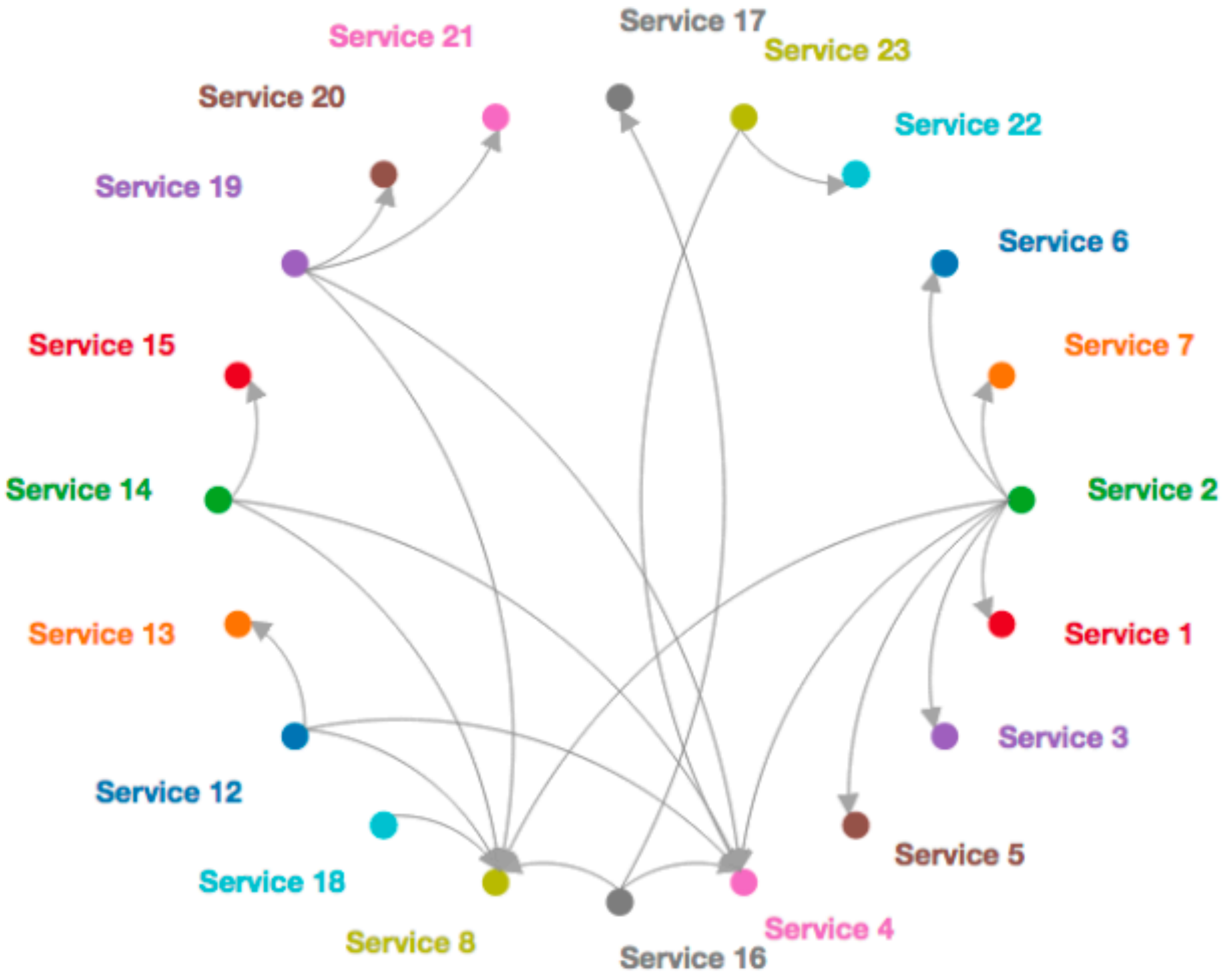
Code-first consumer-driven contract testing tool

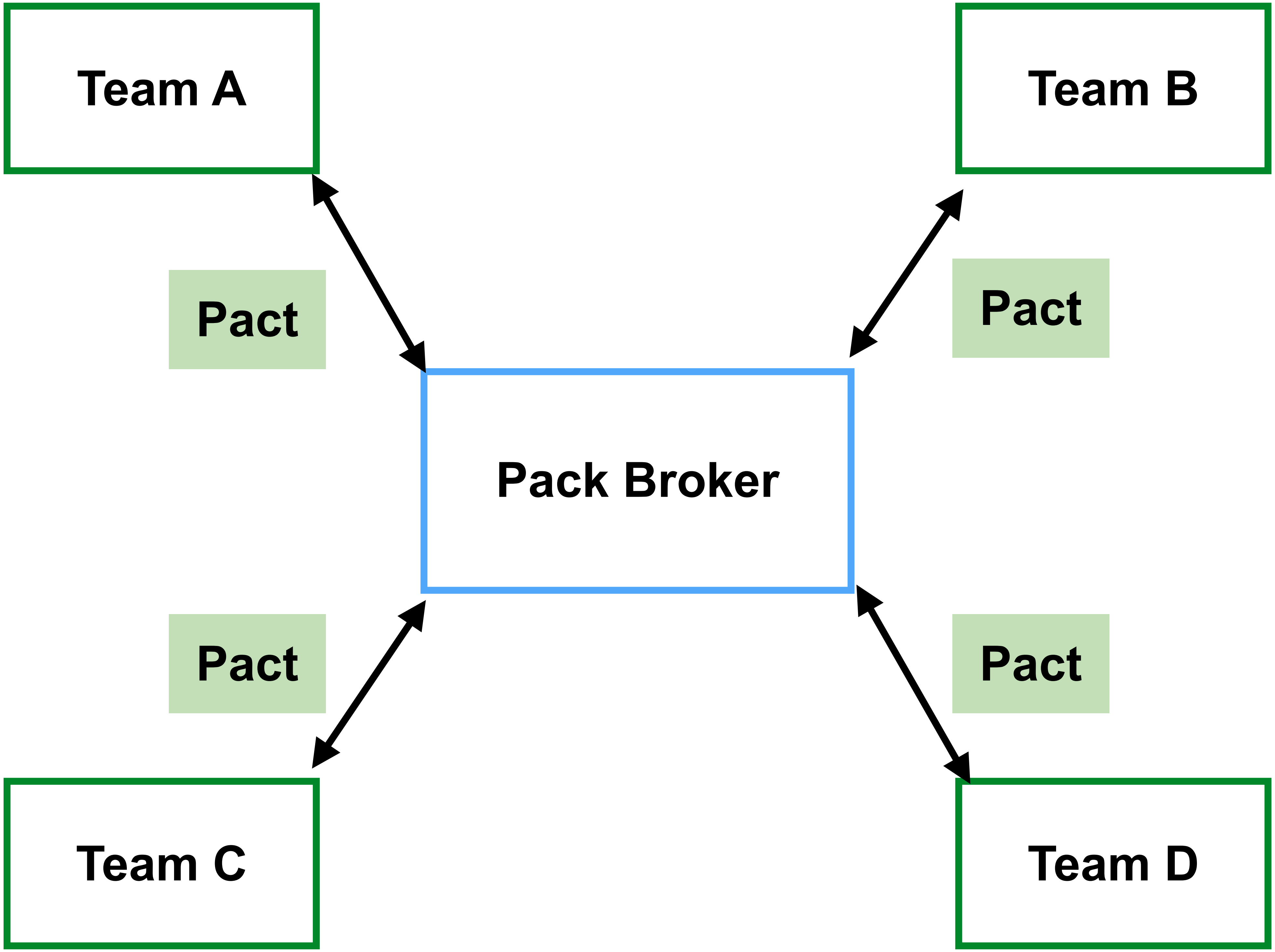


Pact broker

Working with Pact broker




Service 21
Service 17
Service 23
Service 20
Service 22
Service 19
Service 6
Service 15
Service 7
Service 14
Service 2
Service 13
Service 1
Service 3
Service 12
Service 5
Service 18
Service 4
Service 8
Service 16



Team A

Team B

Pact

Pact

Pack Broker

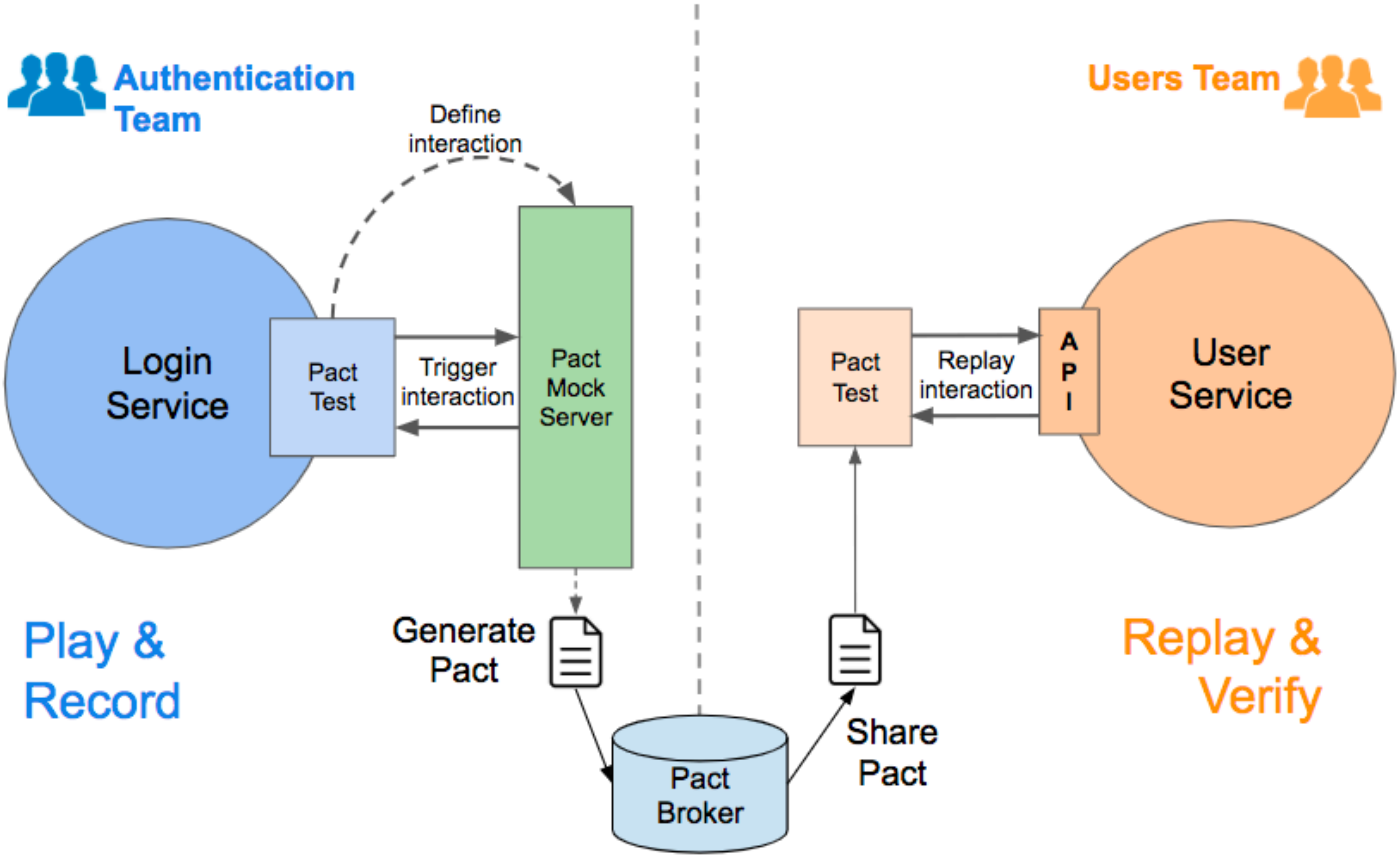
Pact

Pact

Team C

Team D

Example with Pact



Steps to use Pact

Write code for consumer test

Generate contract from consumer test

Create Pact Mock Service to test the provider API

Create Pact Mock Provider as mock API

Publish contract to Pact broker

Verify contract from Pact broker

https://github.com/up1/course-contract-testing/wiki

Write code for consumer test

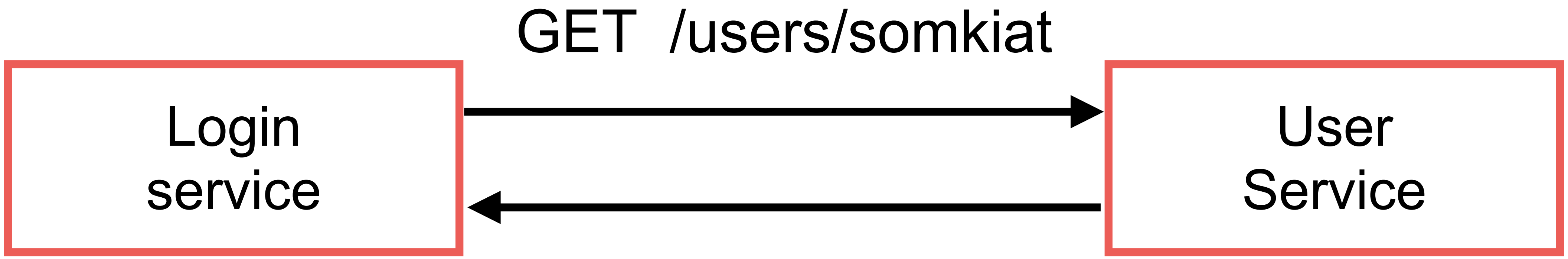
Design First with APIs

Design APIs specification

Create contract test

Generate contract from test

API

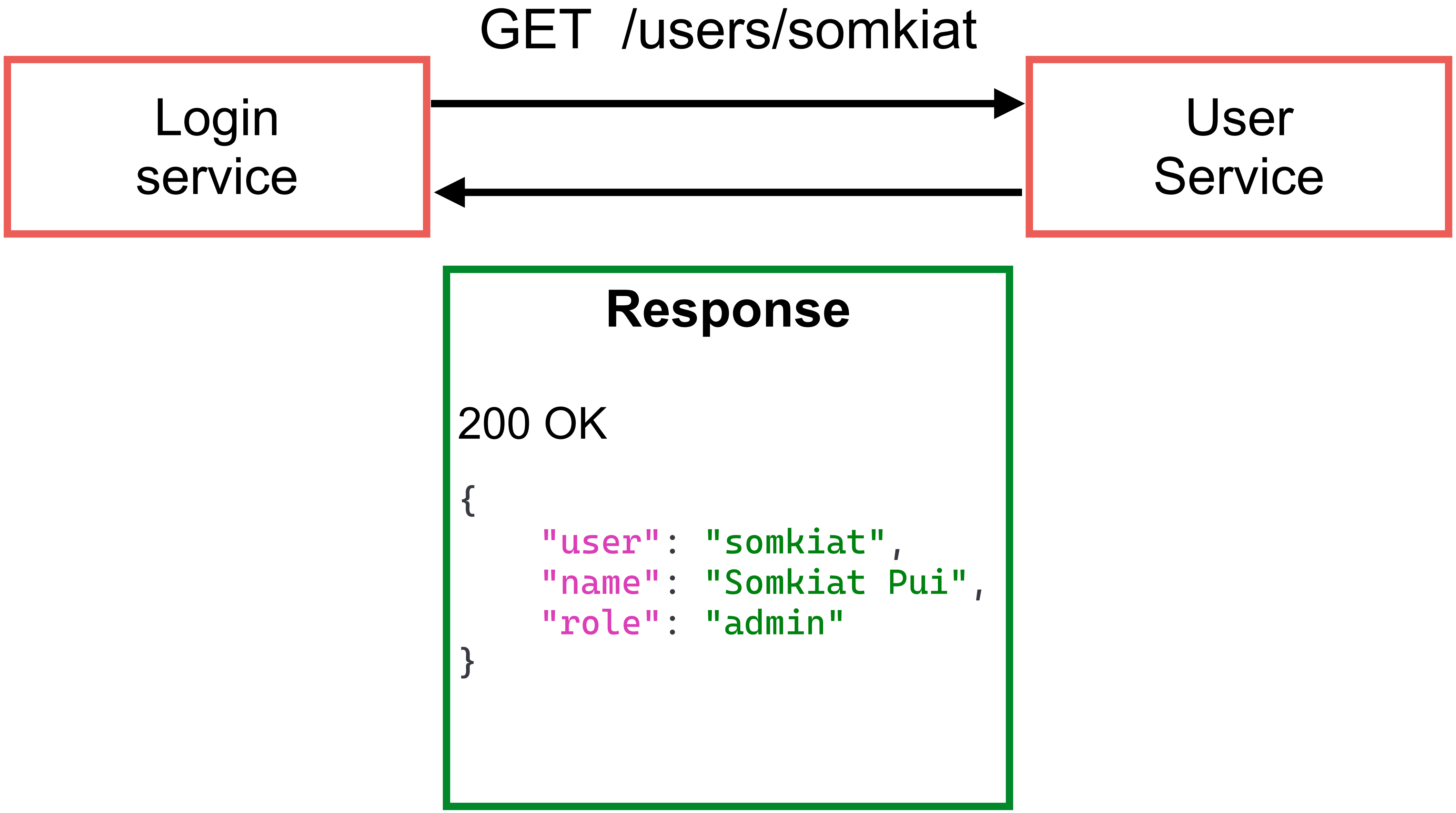


Response

200 OK

```
{
    "user": "somkiat",
    "name": "Somkiat Pui",
    "role": "admin"
}
```

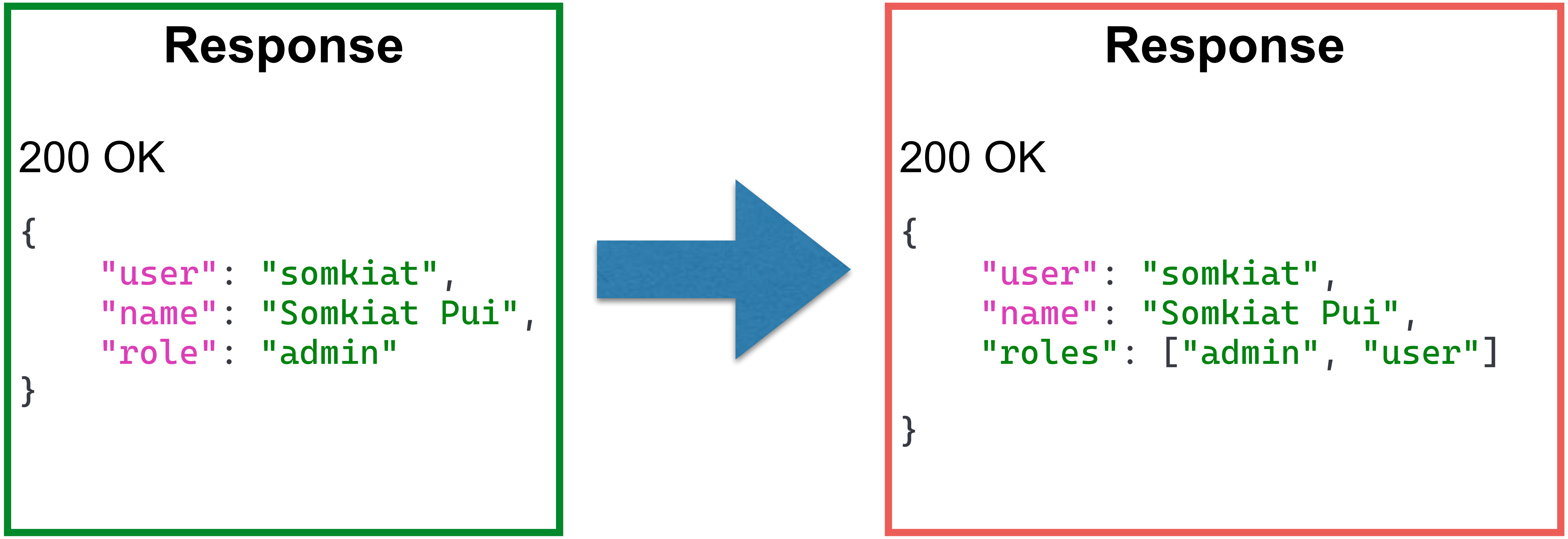
How do we test ?



```
200 OK

{
    "user": "somkiat",
    "name": "Somkiat Pui",
    "role": "admin"
}
```

Change in User service !!



Response

200 OK

```
{
    "user": "somkiat",
    "name": "Somkiat Pui",
    "role": "admin"
}
```

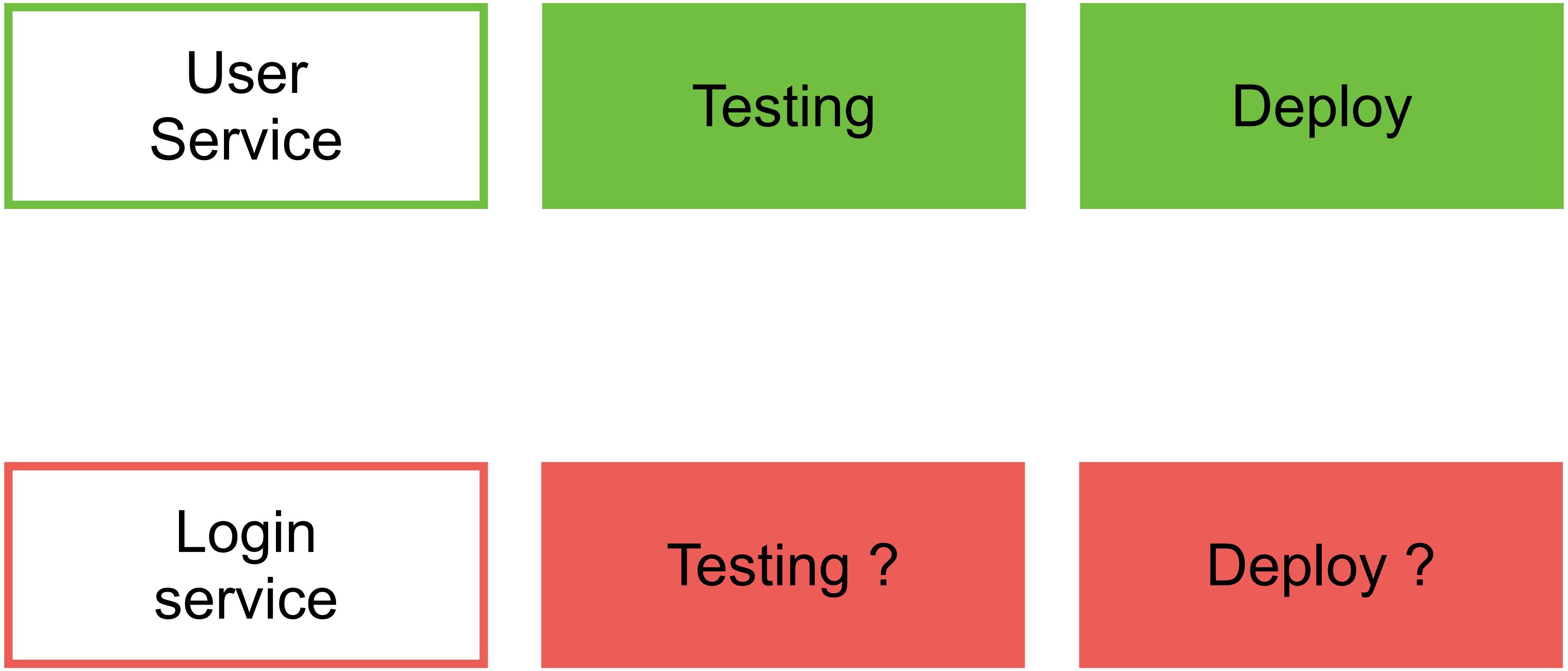
Response

200 OK

```
{
    "user": "somkiat",
    "name": "Somkiat Pui",
    "roles": ["admin", "user"]

}
```

Change in User service !!



User Service

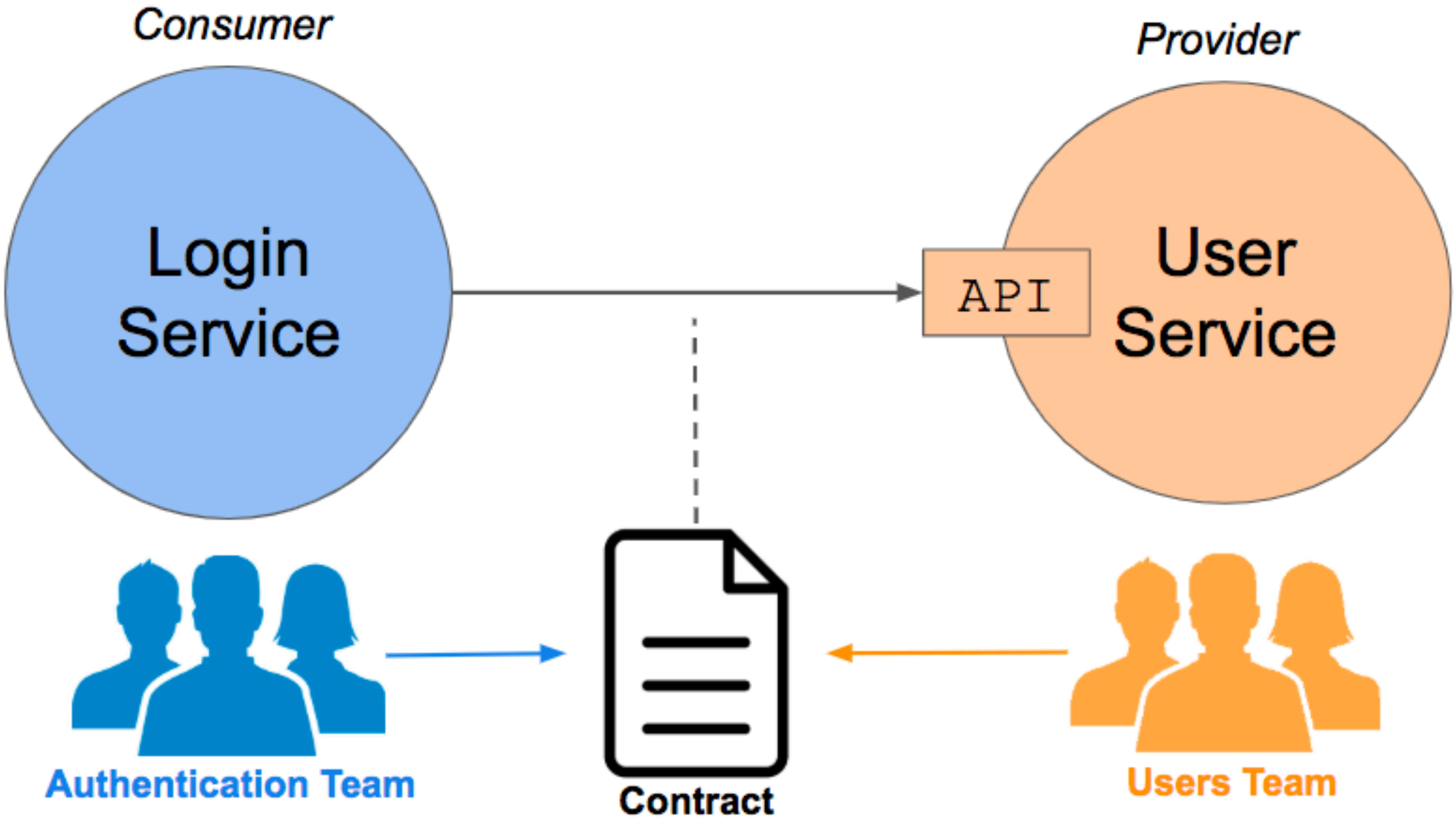
Testing

Deploy

Login service

Testing ?

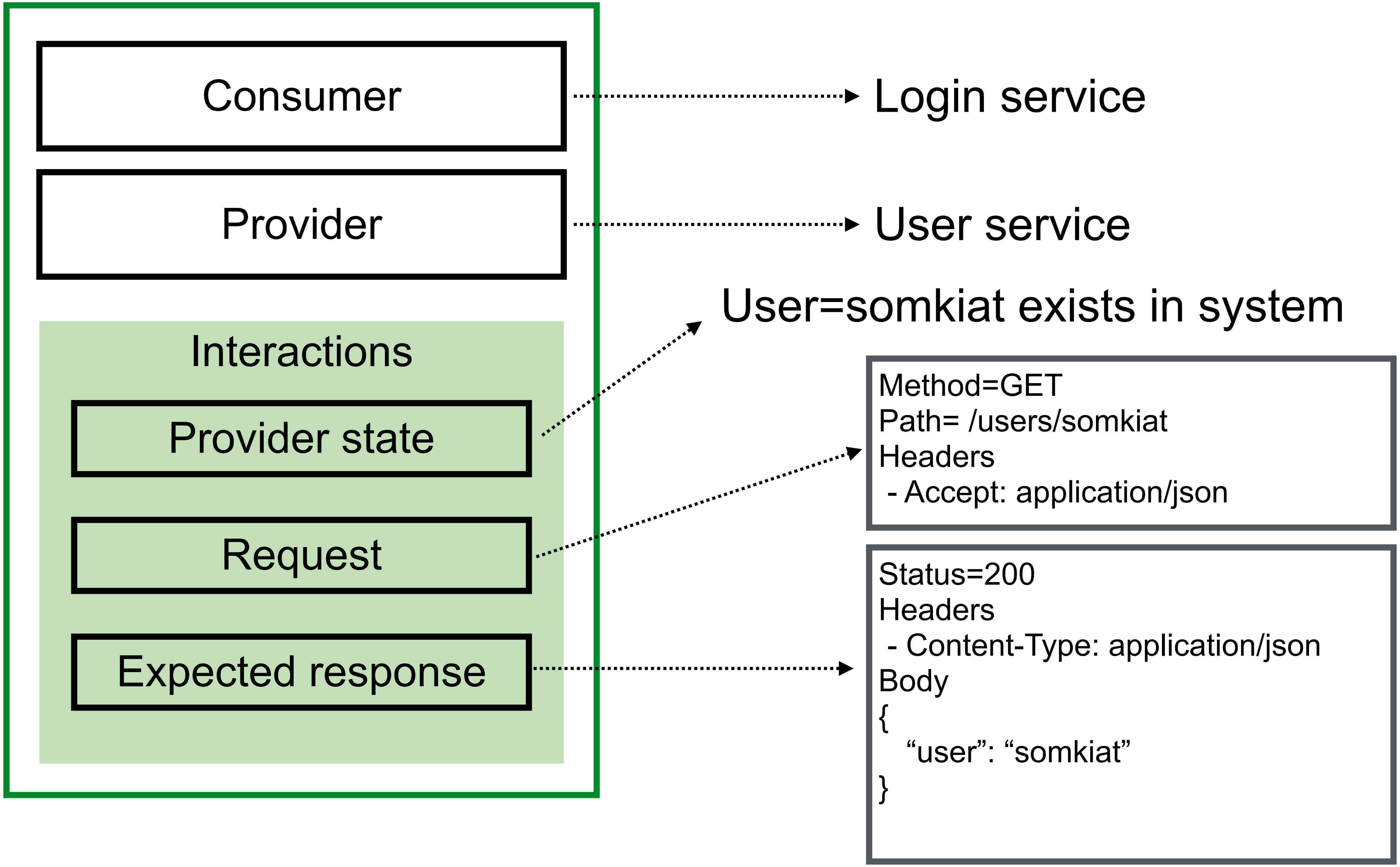
Deploy ?


Consumer
Provider
Login Service
API
User Service
Authentication Team
Contract
Users Team

Structure of contract test

Consumer and Provider
Interaction, provider state
Request and expected response

Structure of contract test



Consumer → Login service

Provider → User service

Interactions

Provider state → User=somkiat exists in system

Request →

Method=GET
Path= /users/somkiat
Headers
 - Accept: application/json

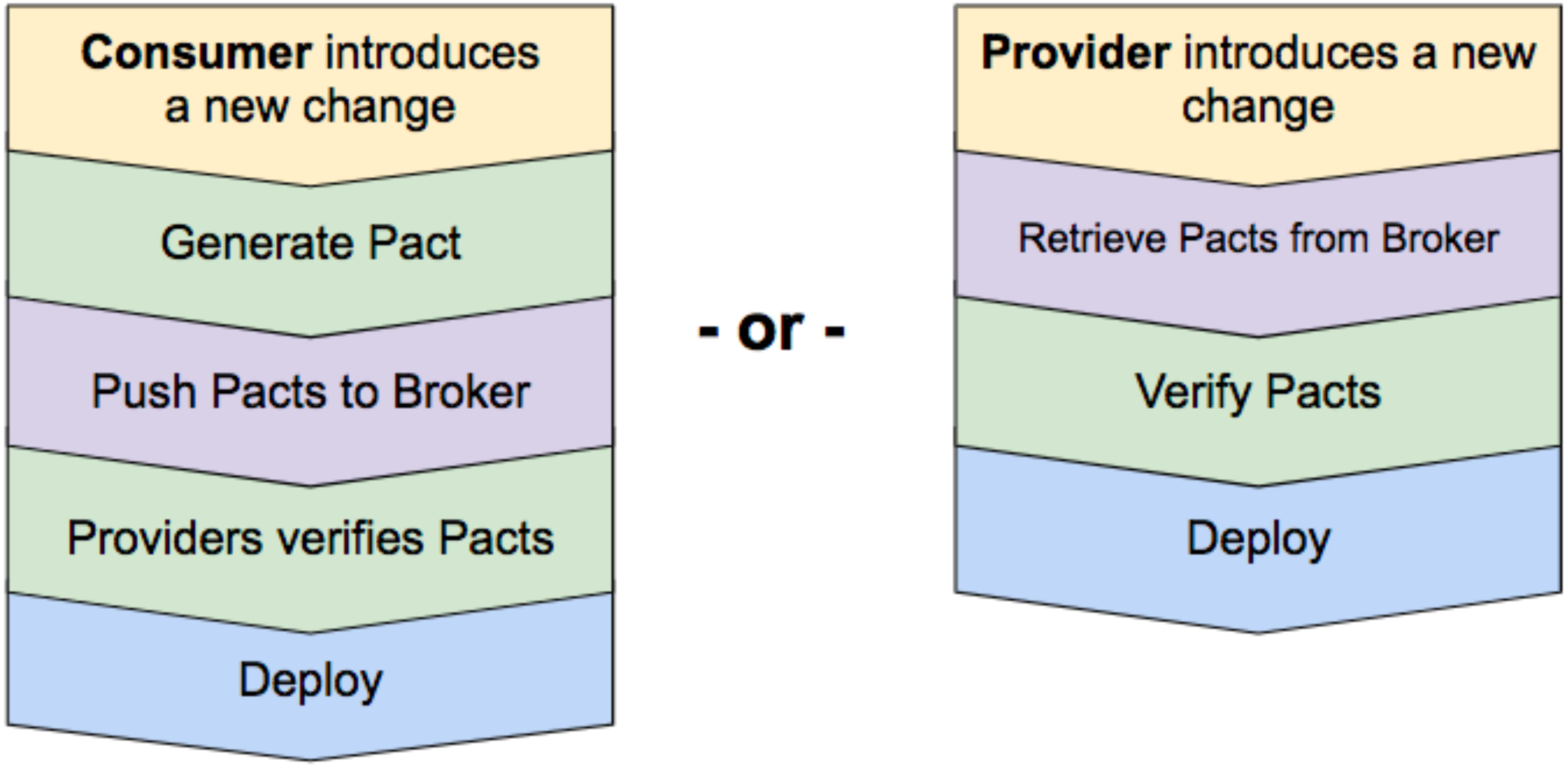
Expected response →

Status=200
Headers
 - Content-Type: application/json
Body
{
   “user”: “somkiat”
}

Working in CI/CD pipeline

CI/CD pipeline

When code/api changes !!



Consumer introduces a new change

Generate Pact

Push Pacts to Broker

Providers verifies Pacts

Deploy

- or -

Provider introduces a new change

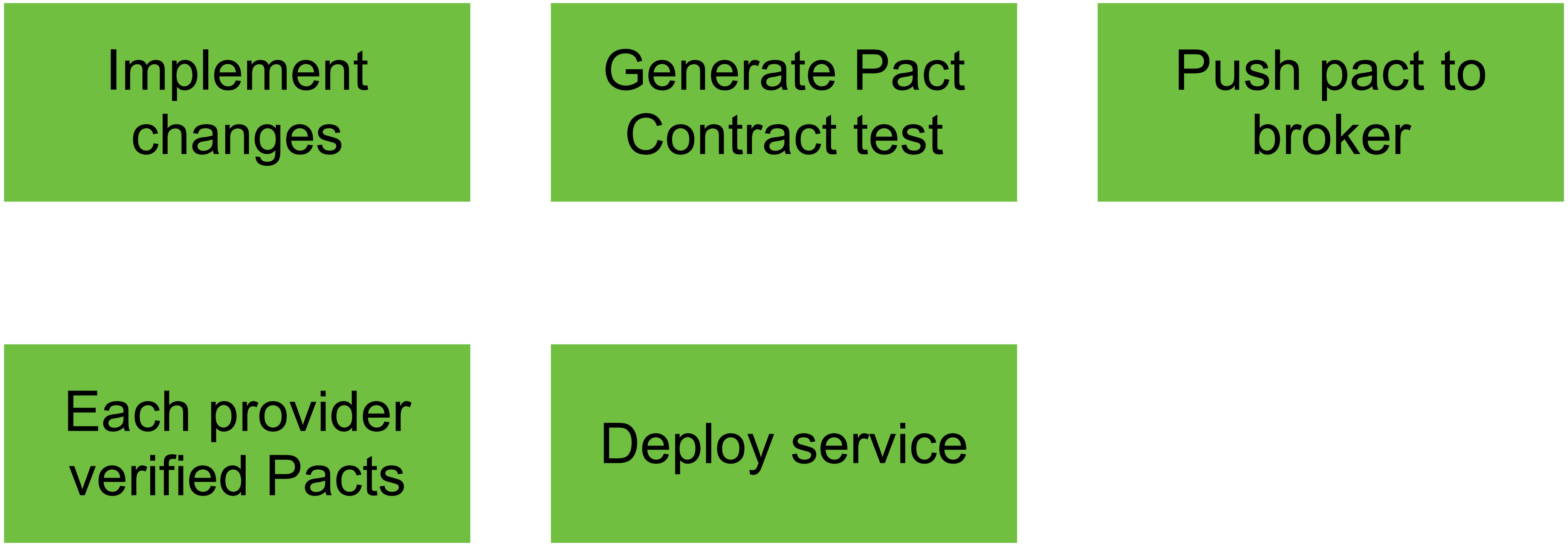
Retrieve Pacts from Broker

Verify Pacts

Deploy

CI/CD pipeline

When code/api changes !!



Implement changes

Generate Pact Contract test

Push pact to broker

Each provider verified Pacts

Deploy service

Contract test

Provider state setup for each interaction

Don’t limit contracts to happy paths

Automation process in deployment pipeline

Q/A